

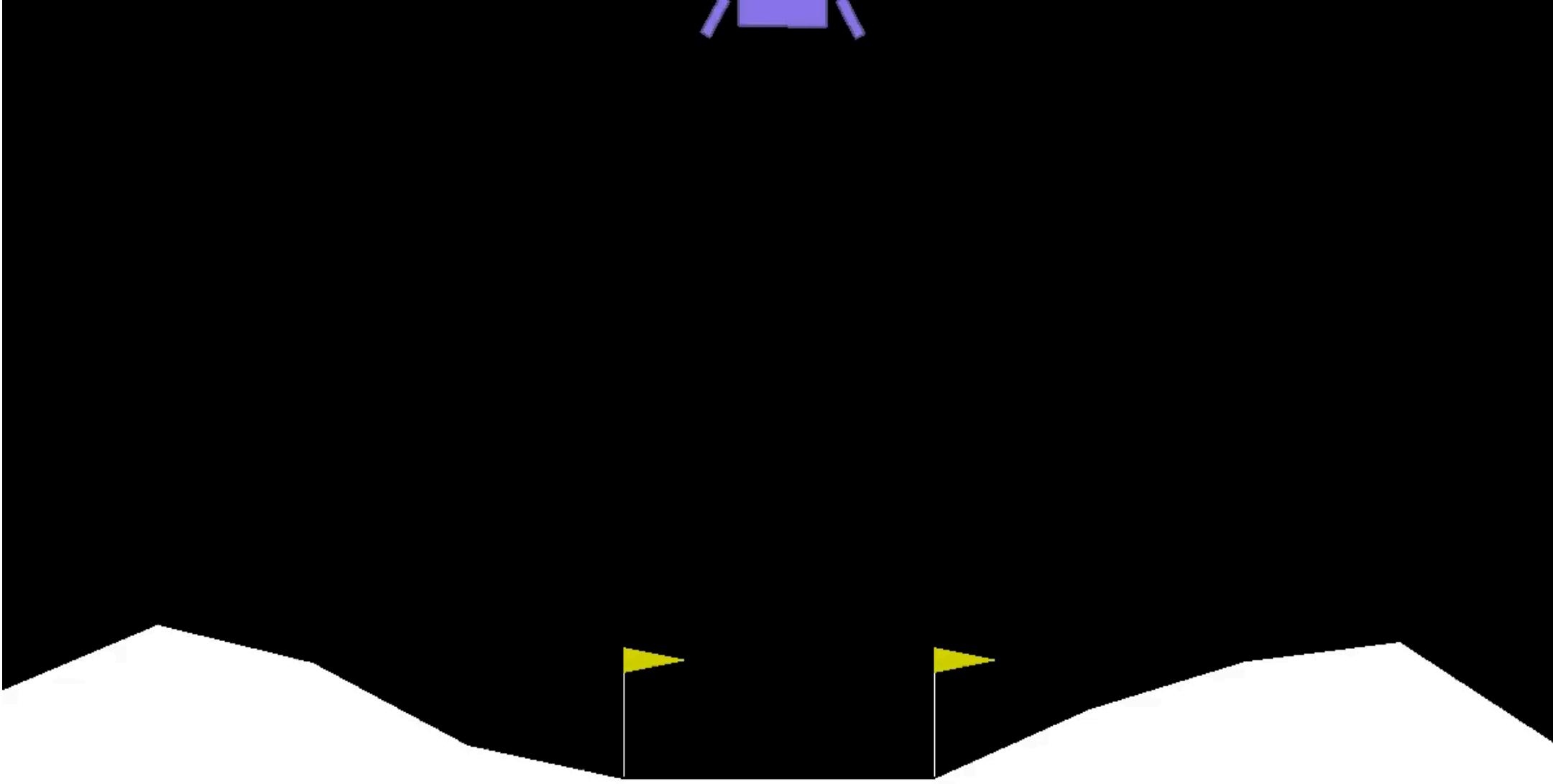
Lunar Lander with Deep Reinforcement Learning



Jonathon Bowyer

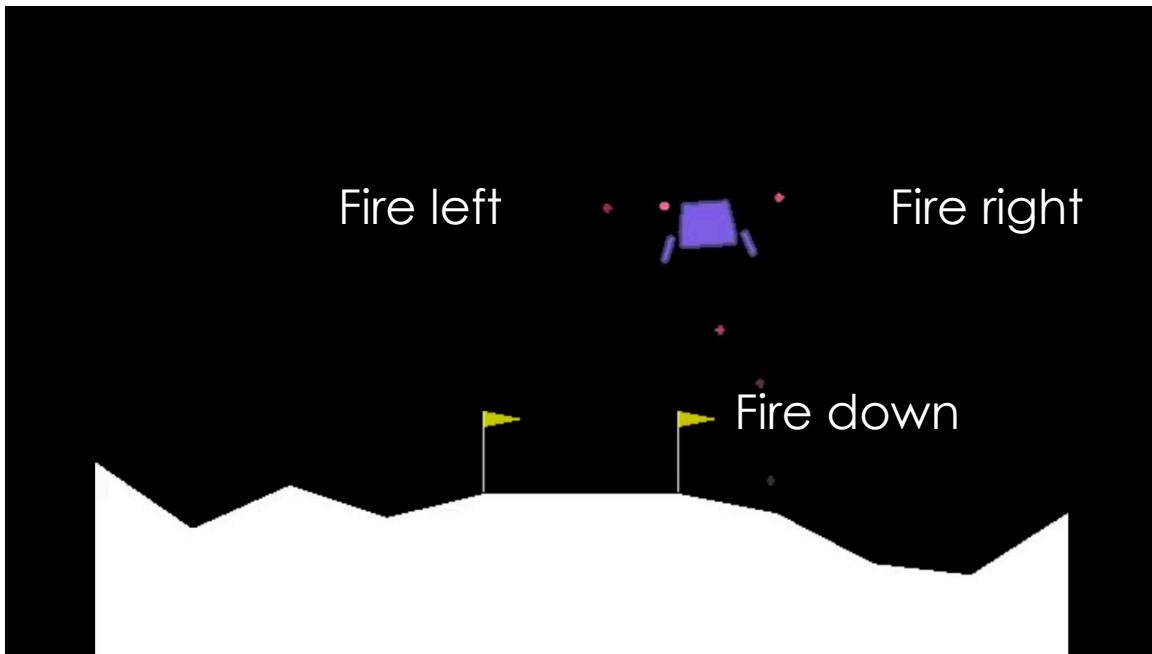
Context...

- ▶ Atari videogame, landing a spacecraft



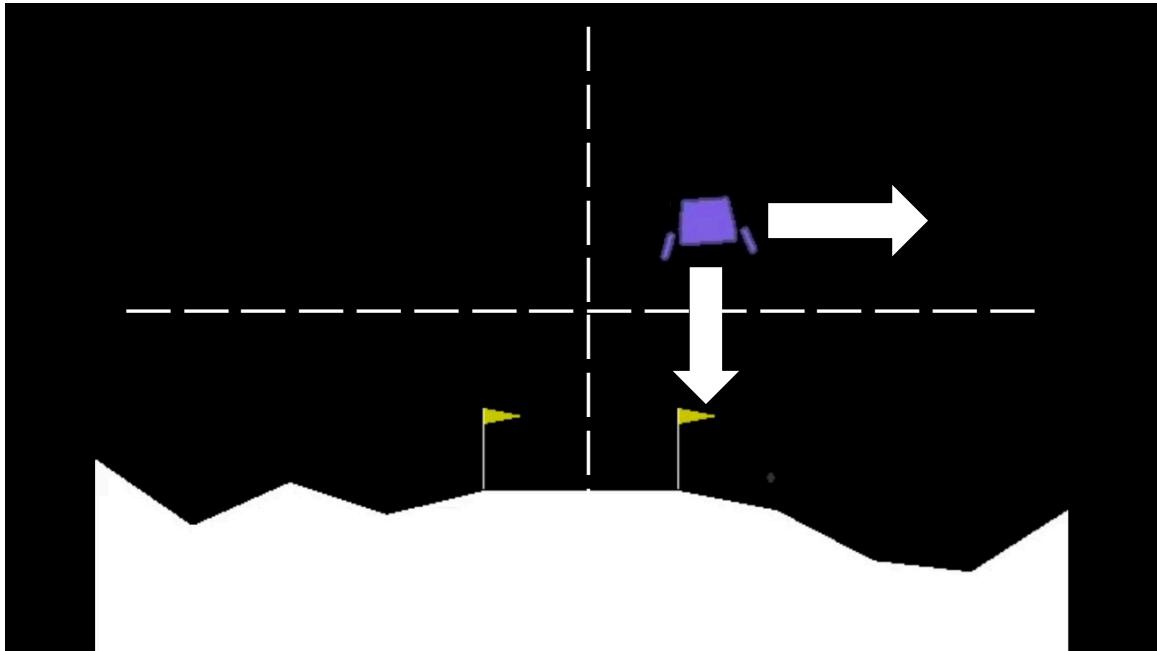
Context...

- ▶ Atari videogame, trying to land a spacecraft between flags
- ▶ 4 Actions



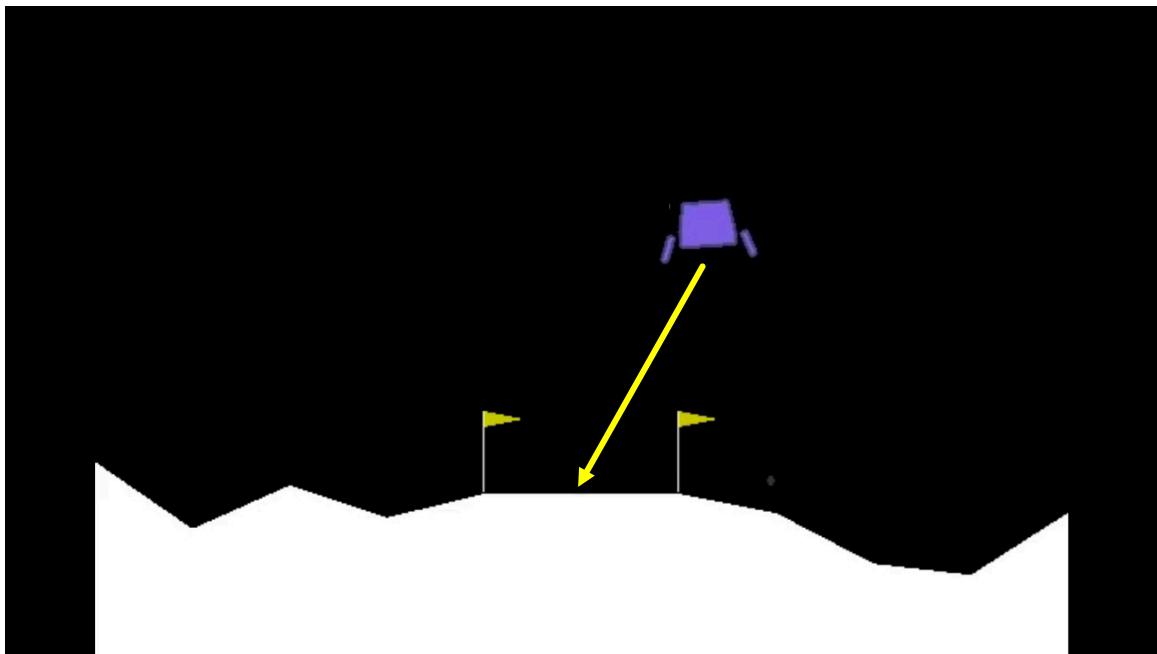
Context...

- ▶ Atari videogame, trying to land a spacecraft between flags
- ▶ 4 Actions
- ▶ State Observation: 8 integers



Context...

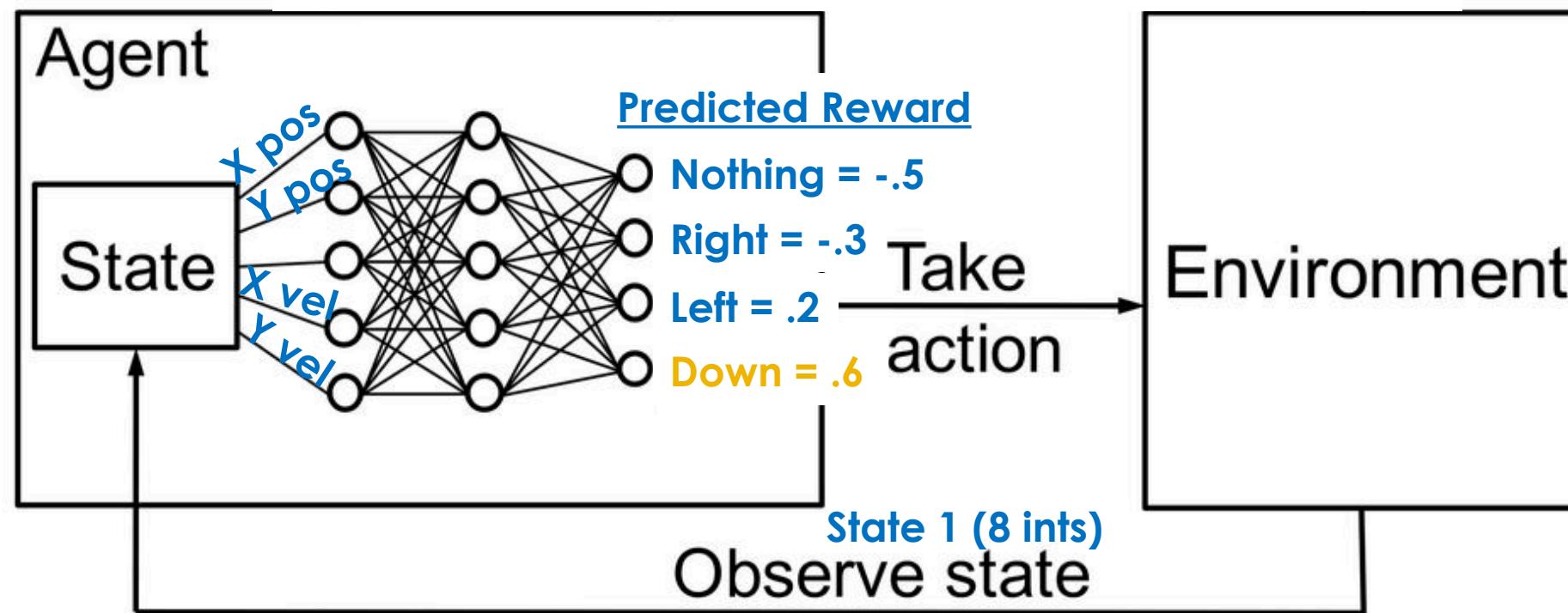
- ▶ Atari videogame, trying to land a spacecraft between flags
- ▶ 4 Actions
- ▶ State Observation: 8 integers
- ▶ Reward range: (-infinity, ~250)

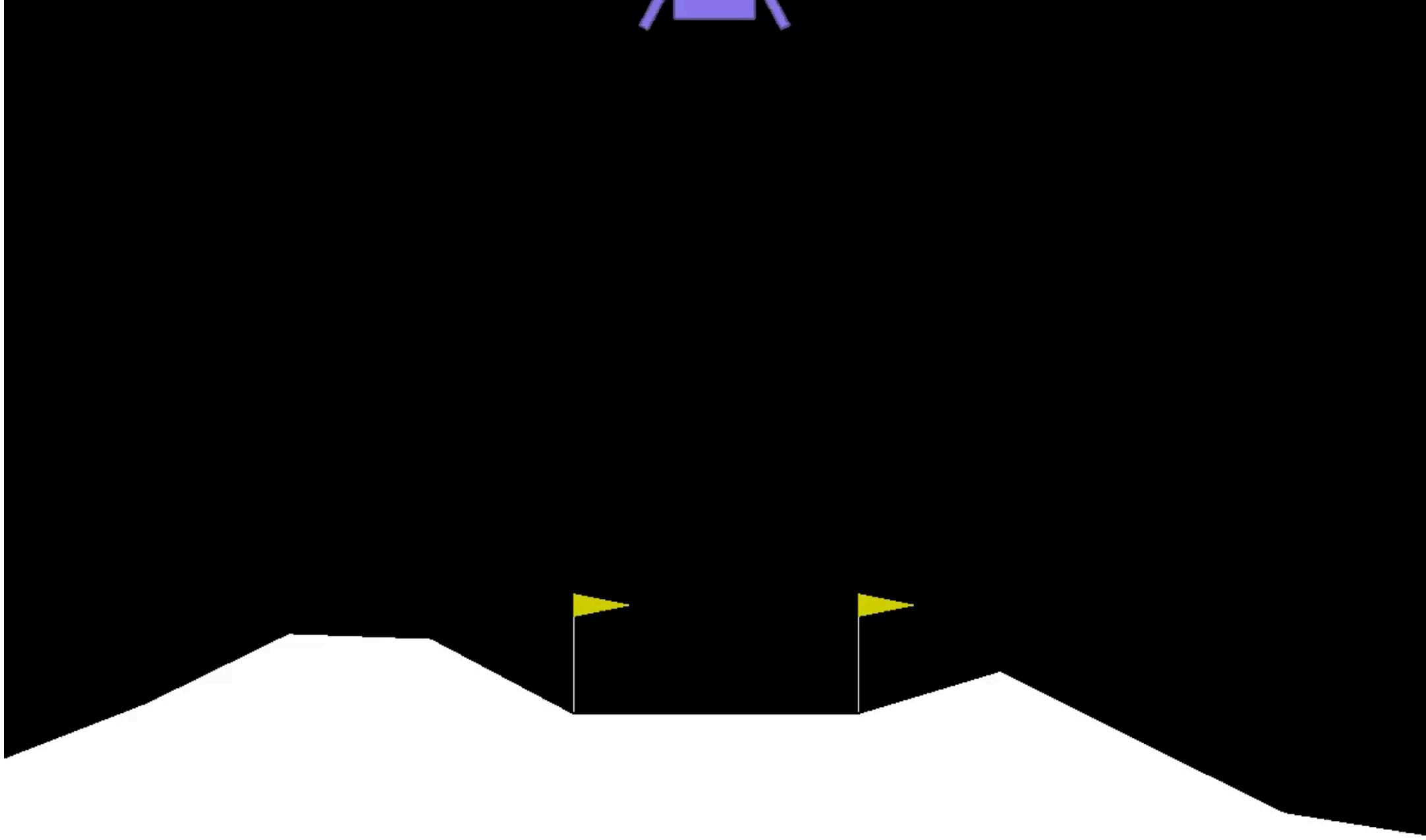


Context...

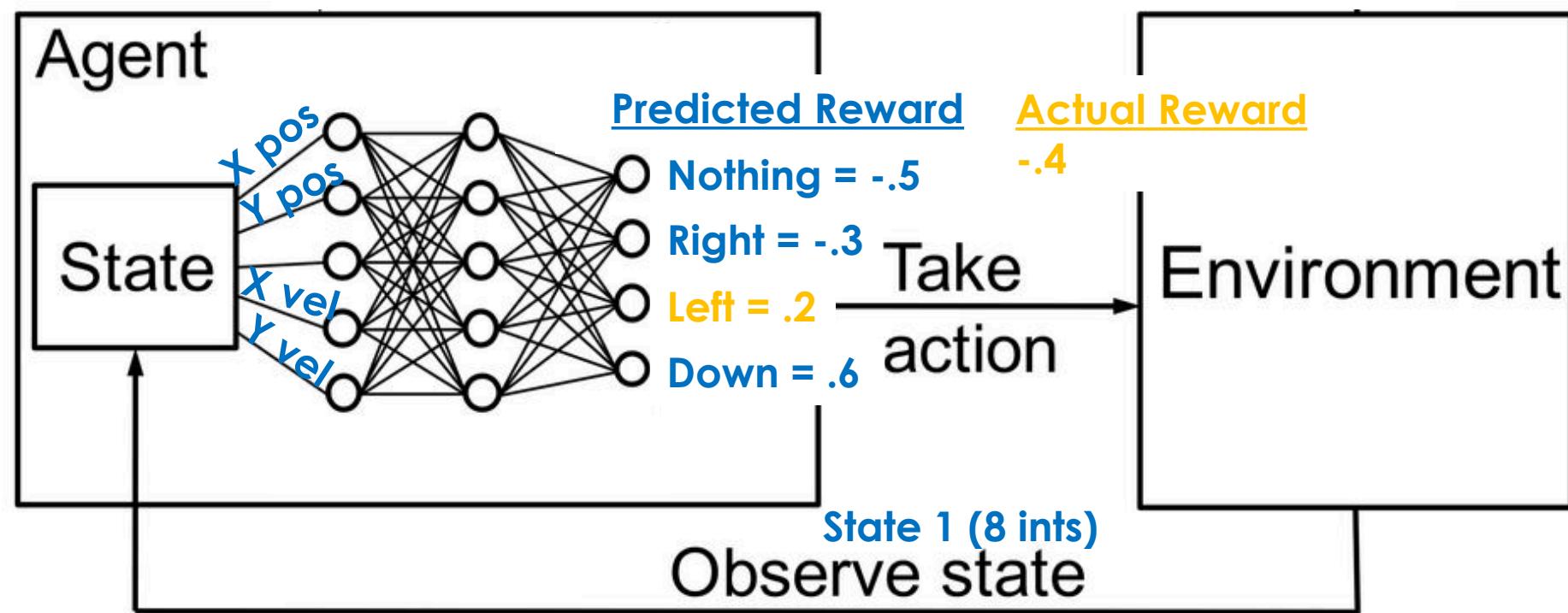
- ▶ Atari videogame, trying to land a spacecraft between flags
- ▶ 4 Actions
- ▶ State Observation: 8 integers
- ▶ Reward range: (-infinity, ~250)
- ▶ Environment created in the OpenAI gym

Deep Reinforcement in Keras & Pytorch

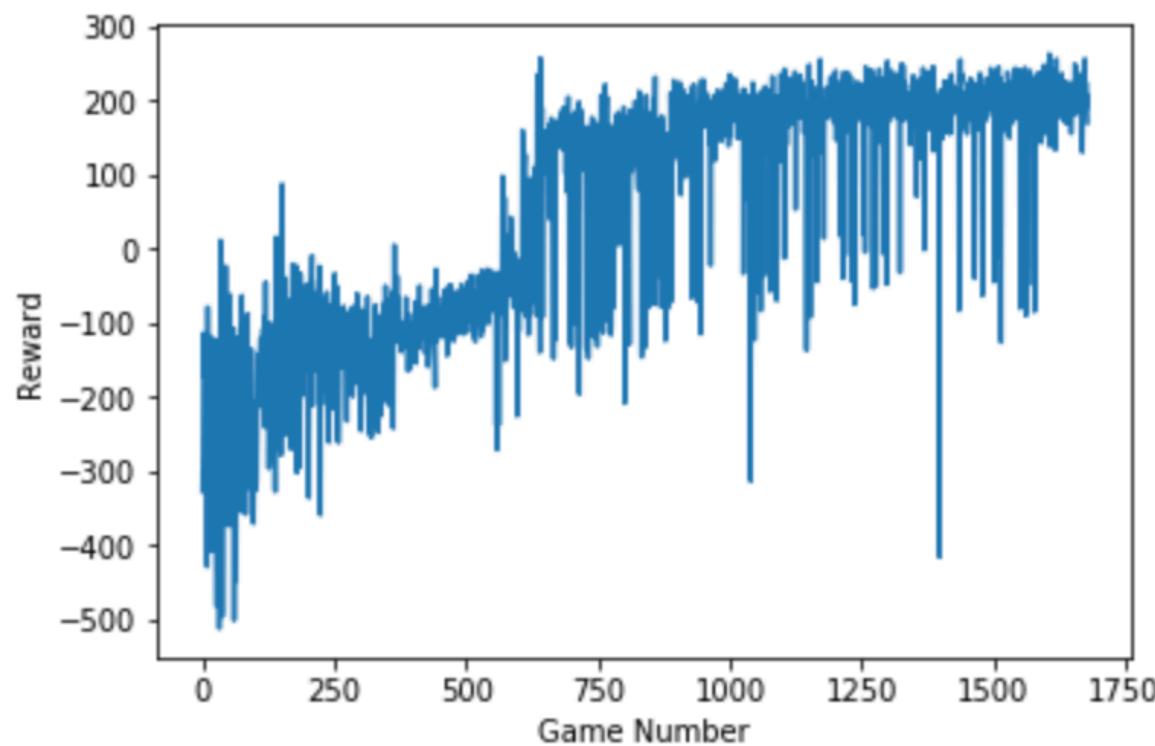


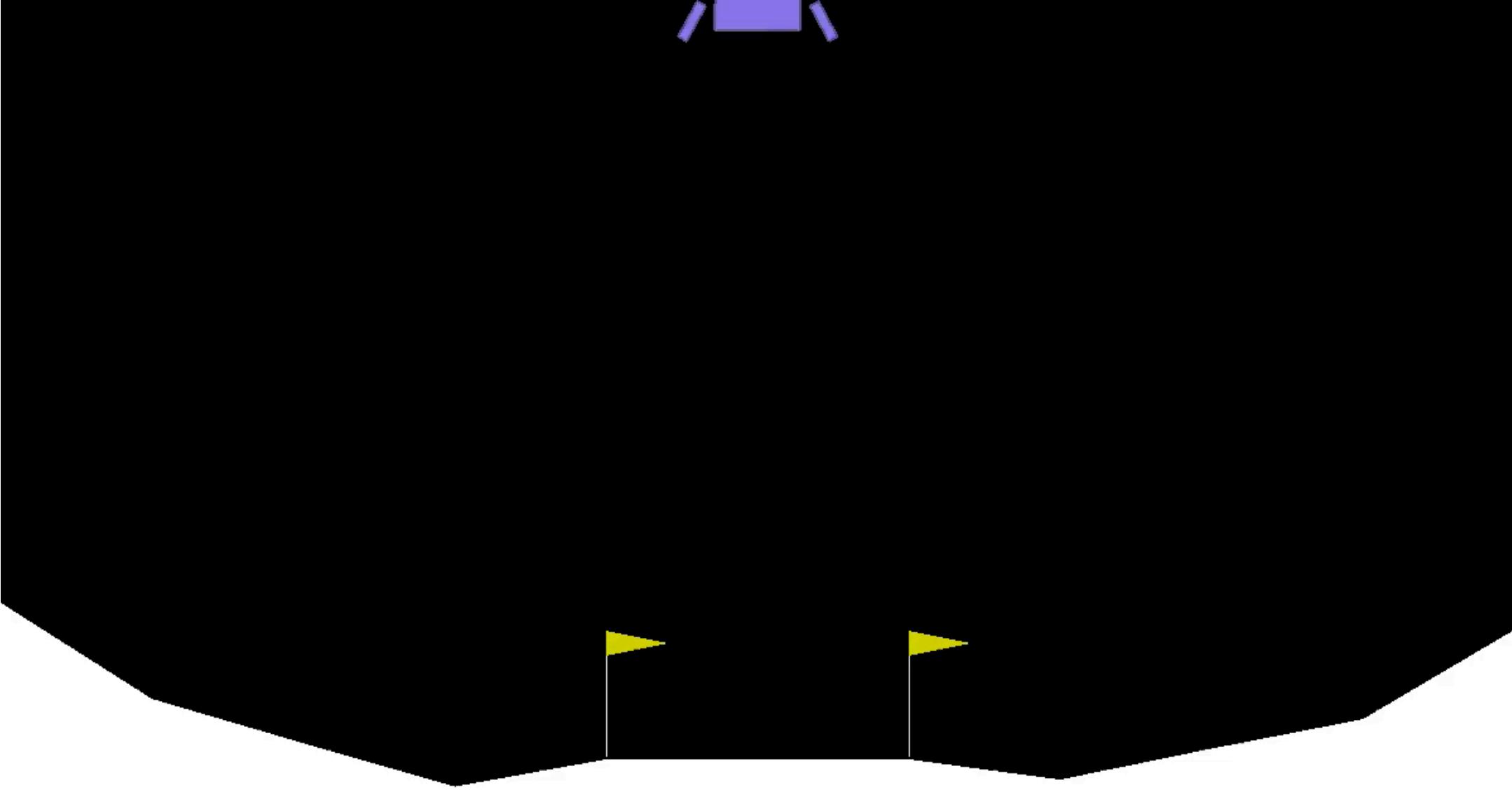


Deep RL Learning: Training the agent



Visualizing the learning process





Future Work

- ▶ Try different neural networks
- ▶ Apply the agents to different games
- ▶ Bridge gap between theory and real-world applications
 - ▶ Deep RL is a field of active research
- ▶ Self-Driving Cars: Wayve (June 2018)
- ▶ Robotics: Google X (June 2018)

QUESTIONS/COMMENTS?

Email: Jbowyer93@gmail.com

LinkedIn: linkedin.com/in/jonathon-bowyer/

Github: github.com/jbowyer93

Appendix

